

mounted on substrate 10's convex side, of course), as shown in FIG. 2, the natural resiliency of membrane 11 and its arched shape supports X strips 12-16 in spaced relationship with Y strips 20-24 and prevents their shorting absent external pressure. Although a wide variety of radii of curvature will undoubtedly work, it is known that a substrate of 25 in. (63.5 cm.) radius of curvature and a 0.003 in. (.00762 cm.) thick polyester membrane molded with a form having a 22 in. (56 cm.) radius of curvature are satisfactory. As shown in FIGS. 1 and 2, it is desirable with this anti-short means, to bond the periphery of membrane 11 to substrate 10 outside Y strips 20-24 to increase the clearance between the peripheral X and Y strip, areas. Spacer 53 may also be used for this purpose. It is likely, although not confirmed, that use of membrane 11's natural resiliency and curvature to provide the necessary anti-short spacing between X and Y strips requires a greater difference in radii of curvature for substrate 10 and membrane 11 than do the previously mentioned anti-short means. Thus, while a 3 in. (7.6 cm.) smaller radius works with a 25 in. (63.5 cm.) substrate radius in all 3 cases, a 1 in. (2.54 cm.) difference or less may well be satisfactory when grid 45 or piezoresistant coating 51 is used.

During the manufacture of this apparatus, it is important that the surfaces of strips 20-24 and 12-16 be relatively free of dust and other foreign matter during attachment of membrane 11 to substrate 10. However, the relatively wide contact areas between crossing strips

does tolerate a small amount of such foreign matter, particularly as long as the foreign matter is non-conductive.

The preceding describes the invention; what is claimed is:

1. A transparent switch matrix to be carried on the face of a rigid insulator substrate having a predetermined radius of curvature, and comprising:

- a. a plurality of spaced apart transparent conductive first strips firmly adhering to the face of the substrate;
- b. a transparent resilient membrane having an undistorted contour substantially alike the predetermined contour, and attached about its periphery to the face of the substrate in a position matching the membrane contour to the substrate contour and spaced apart from the first strips thereon in a predetermined area of the membrane, and having a vent permitting air flow into the space between the membrane and the substrate; and
- c. a plurality of transparent, flexible, spaced apart conductive second strips firmly adhering to the resilient membrane surface facing the substrate, each of said second strips located in the area spaced apart from the first strips and thinner than the spacing therefrom, and each of said second strips crossing at least two first strips.

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